14864 LORAN-C OVERPRINTED

This nautical chart has been designed to promote safe navigation. The National Ocean Service encourages users to submit corrections, additions, or comments for improving this chart to the Director, Charting and Geodetic Services (N/CG22), National Ocean Service, NOAA, Rockville, Maryland 20852

CAUTION
CHANGES in BUOYAGE
Mariners are advised that authorized aids to navigation are being changed to conform to maritime standards of the International Association of Lighthouse Authorities' Maritime Buoyage System, Region B. Significant changes are: black port hand buoys to green, black and white vertically striped buoys to red and white vertically striped buoys, and lateral lights from white to red or green as appropriate. Changes to aids to navigation will be announced in the Defense Mapping Agency Hydrographic/Topographic Center weekly Notice to Mariners and the U.S. Coast Guard Local Notice to Mariners.

Formerly U.S.S. 1st Ed. 1914

SOUNDINGS IN FEET

Nautical Chart Catalog No. 4, Panel C

(CONTINUED ON CANADIAN CHART 2297)

FEET
YARDS
METERS
STATUTE MILES

MIDDLE DUCK ISLAND
GREAT DUCK ISLAND
OUTER DUCK ISLAND
Horseshoe Shoal
Jensen Graham Shoal

Latitude and Longitude Plotting Interpolator

LORAN LINEAR INTERPOLATOR

LORAN-C GENERAL EXPLANATION

RATES ON THIS CHART

LORAN-C OVERPRINTED 14864

(CONTINUED ON CANADIAN CHART 2298)

(LOWE CHART HERO)

RADAR REFLECTORS
Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

NOTE A
Navigation regulations are published in Chapter 2, U.S. Coast Pilot 6. Additions or revisions to Chapter 2 are published in the Notices to Mariners. Information concerning the regulations may be obtained at the Office of the Commander, 9th Coast Guard District in Cleveland, Ohio, or at the Office of the District Engineer, Corps of Engineers in Detroit, Michigan.
Refer to charted regulation section numbers.

Pump-out facilities

CAUTION
Due to periodic high water conditions in the Great Lakes, some features charted as visible at Low Water Datum may be submerged, particularly in the near shore areas. Mariners should proceed with caution.

WARNING
The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot 6 for details.

LAKE MICHIGAN-HURON

Low Water Datum

Average levels (1860-1986)

Extreme Levels (period of record)

Low Water Datum, which is the plane of reference for the tenets shown on the above hydrogram, is also the plane of reference for the charted depths. When the water level is above or below Low Water Datum, the existing depths are correspondingly greater or lesser than the charted depths.

CAUTION
Improved channels shown by broken lines are subject to shoaling, particularly at the edges.

CAUTION
Temporary changes or defects in aids to navigation are not indicated on this chart. See Notice to Mariners.
During some winter months or when endangered by ice, certain aids to navigation are replaced by other types or removed. For details, see U.S. Coast Guard Light List.

CAUTION
Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and Defense Mapping Agency Publication 117.
Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.
Station positions are shown thus:
⊙(Accurate location) ⊙(Approximate location)

NOAA VHF-FM WEATHER BROADCASTS
The National Weather Service station listed below provides continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.
Alpena, Mi. KIG-83 162.55 MHz (Chan WX-1)

NOTE B
LOCAL MAGNETIC DISTURBANCE
Differences from normal variation of as much as 6° have been observed near Great Duck Island in the vicinity of Lat. 45°32', Long. 83°03'.

LORAN LINEAR INTERPOLATOR

For more detail see Chart No. 14869

CAUTION
For bascule bridges, whose spans do not open to a full vertical position, unlimited overhead clearance is not available for the entire charted horizontal clearance when the bridge is open, due to the inclinations of the drawspans over the channel.

ROGERS CITY AND CALCITE
MICHIGAN
Scale 1:20,000
SOUNDINGS IN FEET

ROGERS CITY
CALCITE
PRESQUE ISLE COUNTY AIRPORT
CALCITE RANGE LIGHTS
Outgoing Range Lts. Fixed Green 9° Gp
Incoming Range Lts. Fixed Red 9° Rb

NOTE
There are seven additional unlighted mooring buoys marking a circular area around the outer end of the pipeline.

Lakehead Terminal and Pipeline Co.

ALPENA

THUNDER BAY

HURON

MICHIGAN

NOTE A

Navigation regulations are published in Chapter 2, U.S. Coast Pilot 6. Additions or revisions to Chapter 2 are published in the Notices to Mariners. Information concerning the regulations may be obtained at the Office of the Commander, 9th Coast Guard District in Cleveland, Ohio, or at the Office of the District Engineer, Corps of Engineers in Detroit, Michigan.

Refer to charted regulation section numbers.

Pump-out facilities

CAUTION

Due to periodic high water conditions in the Great Lakes, some features charted as visible at Low Water Datum may be submerged, particularly in the near shore areas. Mariners should proceed with caution.

WARNING

The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot 6 for details.

LAKE MICHIGAN-HURON

Average levels (1980-1989)

Extreme Levels (ported of record)

Low Water Datum, which is the plane of reference for the levels shown on the above hydrograph, is also the plane of reference for the charted depths. Since the water level is often below Low Water Datum, the existing depths are correspondingly greater or lesser than the charted depths.

CAUTION

Improved channels shown by broken lines are subject to shoaling, particularly at the edges.

CAUTION

Temporary changes or defects in aids to navigation are not indicated on this chart. See Notice to Mariners.

During some winter months or when endangered by ice, certain aids to navigation are replaced by other types or removed. For details see U.S. Coast Guard Light List.

CAUTION

Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and Defense Mapping Agency Publication 117.

Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.

Station positions are shown thus:

⊙(Accurate location) ⊙(Approximate location)

NOAA VHF-FM WEATHER BROADCASTS

The National Weather Service station listed below provides continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.

Alpena, MI. KIG-83 162.55 MHz (Chan WX-1)

LORAN LINEAR INTERPOLATOR

NOTE E

LOCAL MAGNETIC DISTURBANCE

Differences from normal variation of as much as 8° have been observed near Great Duck Island in the vicinity of Lat. 45°32', Long. 83°03'.

For more detail see Chart No. 14869

CAUTION

For bascule bridges, whose spans do not open to a full vertical position, unlimited overhead clearance is not available for the entire charted horizontal clearance when the bridge is open, due to the inclinations of the drawspans over the channel.

NOTE D

Mariners are warned that numerous uncharted stakes and fishing structures, some submerged, may exist in the area of this chart. Such structures are not charted unless known to be permanent.

ROGERS CITY AND CALCITE
MICHIGAN
Scale 1:20,000
SOUNDINGS IN FEET

HARRISVILLE HARBOR
MICHIGAN
Scale 1:12,000
SOUNDINGS IN FEET

NOTE

There are seven additional unlighted mooring buoys marking a circular area around the outer end of the pipeline.

ALPENA HARBOR
MICHIGAN
Scale 1:15,000
SOUNDINGS IN FEET

Latitude and Longitude Plotting Interpolator

LORAN LINEAR INTERPOLATOR

LORAN-C
GENERAL EXPLANATION

LORAN-C FREQUENCY 100KHz
PULSE REPETITION INTERVAL
8970 89,700 Microseconds
9960 99,600 Microseconds

STATION TYPE DESIGNATORS (Not individual station letter designators)
M Master
W Secondary
X Secondary
Y Secondary
Z Secondary

EXAMPLE: 9960-Y

RATES ON THIS CHART

8970-X 8970-Y
9960-W 9960-Y

The LORAN-C correction tables published by the Defense Mapping Agency or other sources should be used with this chart. The rates of position shown have been carefully tested, but variations from the charted rates may be found to exist due to receiver error, accuracy criteria, or other causes. See U.S. Coast Guard, Mariners Advisories and Local Notice to Mariners. Stations should be checked for any variation in the rates in operation.

SUPPLEMENTAL INFORMATION

Consult U.S. Coast Pilot 6 for important supplemental information.

UNITED STATES - GREAT LAKES
LAKE HURON - MICHIGAN

HARRISVILLE TO FORTY MILE POINT

Polyconic Projection
Scale 1:80,000
North American Datum 1983

SOUNDINGS IN FEET

(JOINS CHART 14863)

24th Ed., Sept. 29/90 ■
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CAUTION

This chart has been corrected from the Notice to Mariners published weekly by the Defense Mapping Agency Hydrographic/Topographic Center, the Canadian Ministry of Transport and the Local Notice to Mariners issued periodically by each U.S. Coast Guard district to the date shown in the lower left-hand corner.

SOUNDINGS IN FEET

20th Anniversary 1970–1990
National Oceanic and Atmospheric Administration
"Serving The Nation"
John A. Knauss, Administrator

Published at Washington, D.C.
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

FATHOMS, FEET, METERS

(Harrisville to Forty Mile Pt.)

14864
LORAN-C OVERPRINTED